

### A cross-cultural history of international relations: book translations in the twentieth century

Deutsch, Robert

Veröffentlichungsversion / Published Version  
Zeitschriftenartikel / journal article

Zur Verfügung gestellt in Kooperation mit / provided in cooperation with:  
GESIS - Leibniz-Institut für Sozialwissenschaften

#### Empfohlene Zitierung / Suggested Citation:

Deutsch, R. (1985). A cross-cultural history of international relations: book translations in the twentieth century. *Historical Social Research*, 10(4), 3-41. <https://doi.org/10.12759/hsr.10.1985.4.3-41>

#### Nutzungsbedingungen:

Dieser Text wird unter einer CC BY Lizenz (Namensnennung) zur Verfügung gestellt. Nähere Auskünfte zu den CC-Lizenzen finden Sie hier:  
<https://creativecommons.org/licenses/by/4.0/deed.de>

#### Terms of use:

This document is made available under a CC BY Licence (Attribution). For more Information see:  
<https://creativecommons.org/licenses/by/4.0>

## A CROSS-CULTURAL HISTORY OF INTERNATIONAL RELATIONS: BOOK TRANSLATIONS IN THE TWENTIETH CENTURY(\*)

Robert Deutsch(+)

**Abstract:** Cross-cultural history is concerned not so much with illuminating particular features that characterize a given culture, as with emphasizing reciprocal impacts and cross-fertilization among cultures. In the past, as in the present, translations have played an important cross-cultural role in rendering intelligible the strange and the unknown. Every nation, region, or culture has played a dual role in this process, both as cultural producer and as recipient. My own research attempts to contribute to the history of translations during the twentieth century as a cross-cultural history of international relations.

Cross-cultural historical investigation of translations has drawn attention to the changing features that both unite and differentiate cultural and scientific tastes of various peoples and nations. Common features include the striking growth in the total number of translations during the present century; the increasing interest in the cultural achievements of the English-speaking world; the geographical extension of translations from and toward continents other than Europe; and changes in the subject matter of translations, with a shift to themes other than literature (such as sciences, arts, and sports).

This study attempts to view the history of translations as a stellar constellation in which the creations of vanished worlds continue to sparkle, just as extinct stars go on casting their light on distant heavenly bodies in the universe.

If we consider the development of civilizations in this fashion, we shall no longer think in terms of cultural dominance and subordination, or in terms of rising and falling civilizations; instead the *longue duree* of history will recall the movements of low tide and high tide.

### INTRODUCTION

Cross-cultural history pursues a similar methodology to that of comparative history. The main aim of comparative historiography is to illuminate features that are particular to one nation through comparisons with the history of other nations.

Cross-cultural history extends the focus of investigation and comparisons to the history of cross-fertilizations between cultures. It attempts to extend structural history by illuminating the "*longue duree*" of such relations. Cross-cultural history thus concentrates its attention on the dissemination of values in world history. It is the history of integration of the foreign values into one's own. Cross-cultural history also comprises the study of diffusion and transfer of foreign technologies, foreign patents and inventions; the History of extension by food and food habits of foreign nations;

(+) Address all communications to: Robert Deutsch, Department of History, Stanford University, Stanford, California USA.

the transmission of ideas (scientific, artistic, literary, and so forth), fashions, tastes, manners, music, dance etc. In this sense, cross-cultural history signifies above all history of international relations.

Cross-cultural history differs methodologically from the history of acculturation. The latter conceives of "higher" and "lower" forms of civilization. Cross-cultural history, by contrast, places the cultural giver and recipient on an equal level. Cross-cultural history, attempts to elucidate the constant exchange of roles between giver and recipient from the results of human creativity. Cross-cultural history investigates the manner in which values and local creations transcend their regional or national limits. Cross-cultural history aims, above all, at showing the way in which, through curiosity and imitation, a global civilization has developed, stressing those cultural features that divide, and those that are shared by mankind as a whole.

In the past as in the present, translations have made a major contribution in rendering intelligible the foreign, the strange and the unknown, and have therefore played an important cross-cultural role. For untold centuries, translations have diffused works that originally had been written in Chinese, Hebrew, Greek, Latin, Arabic, French, English, German, Russian, Spanish, and so forth. Such translations have thereby facilitated to an extraordinary extent cross cultural fertilization in human history. The interest in such translations forever fluctuates from country to country. High tide and low tide never ends, as particular nations or cultures withdraw from one another or find common interests. New combinations always arise, as relations change between cultural givers and recipients. These shifts vary with the changing interest evinced by particular communities in the subject matter of translations from many foreign tongues. Every nation, region, or culture has played a dual role in this process, both as a cultural producer and as a recipient.

These fluctuations in the attention given to foreign cultures and creativity through translations have not as yet been studied to any appreciable extent. The following essay therefore attempts to make a contribution to the history of translations during the present century.

The data for this study is derived from in the UNESCO Statistical Yearbook but were originally more extensive, published in the Index Translationum, (First Edition 1932-1939, by the League of Nations, Geneva, and Second Edition 1948-1978, UNESCO, Paris).

The rate of growth of translations shows the increasing historical importance of translations. In 1932 the available sources listed a total of 3,208 translations for six countries: Germany, France, Spain, Great Britain, Italy and the U.S. By 1948 the total was comprised of 26 countries; with a total of 8,570 translations, and in 1978, 74 countries with a total of 57,147 translations.

Statistics of this kind should always be regarded with some caution. But they facilitate the elucidation of wider historical durations and changes in so far as they bear on translations.

The present study only aims at a cross-cultural history of translations. The results of this work can therefore have only limited validity. This study does not extend to all countries; it deals only with a select number of countries. It is not concerned with the content of the works translated, but

relates only to general tendencies concerning languages, countries, and subjects as they affect translations during the last 45 years. No attempt has been made to discuss extensively the production and trade of books. Neither does this study touch on journal articles in foreign languages, or their translations.

The statistics regarding book translations do, however, point out attitudes toward general changes in accepted values within national communities that purchase works deriving from other linguistic regions, nations, cultures, and countries, and that integrate such works into their own values systems.

The Index Translationum, 1932 to 1978, and the UNESCO Yearbook (up to 1978) show that 1933, 1950, and 1978 are the most suitable years for the purpose of making broad comparisons regarding the subjects translated, the countries from which such translations derive, or were effected, and the frequency of translations. In 1932, the Index Translationum had only dealt with translations from six countries. By 1933, their number had already risen to 13. By 1950 - following World War II - all countries comprised in the 1933 statistics had once more been included (except Sweden). The statistics for 1978 were the last statistics published by UNESCO during the period when the present project went under way (1984). An initial comparison regarding the number of translations (see Table 1) shows the following:

- a. Between 1933 and 1950, the total number of translations had almost doubled. Between 1950 and 1978, their number had increased five fold; between 1933 and 1978, the total number had gone up almost ten times.

Table 1

Translations World Total	
1933	5,855
1950	10,014
1978	57,147

- b. As regards the total number of translations, by countries (see Table 2) Italy occupied the first place in 1933; Germany (including both East and West) took the first place in 1950, and France in 1978.

Table 2

Translations of Leading Countries

1933		1950		1978	
Countries	Translations	Countries	Translations	Countries	Translations
1. Italy	930	1. Germany	1,290	1. France	8,350
2. France	662	2. Italy	937	2. Germany	7,168
3. USSR	659	3. Poland	937	3. USSR	7,023
4. UK	346	4. France	883	4. Spain	5,543
	644				
USA	298				
5. Germany	536	5. UK	463	5. Netherland	3,847
			850		
		USA	387		
6. Poland	534	6. Bulgaria	784	6. UK	1,484
					2,973
				US	1,479
7. Spain	461	7. Netherland	756	7. Japan	2,307

- c. The countries that had occupied the leading position in 1933 retained their lead in 1978 - with the exception of Poland.
- d. By 1978, Japan had joined the leading group, whereas Italy, Bulgaria and Poland had dropped out of this category of which they had formed a part.
- e. As regards the total number of translations by countries, Great Britain and the U.S. taken together occupied the fourth place in 1933 (ranking behind the Soviet Union). In 1950 the two countries stood in the fifth place (before Bulgaria), and in 1978 they ranked sixth (after Holland, and before Japan). If Great Britain and USA are treated as individual countries, they belong to what might be called the advanced developing countries in so far as foreign language translations were concerned.

The subjects translated (see Table 3) rank as follows:

- a. In 1933, 1950, and 1978 almost translations were made in the field of literature (see Fig. 1) both as regards absolute numbers and percentages. The proportion of translations in the field of literature did, however, diminish, when compared to translations in other fields. (Between 1933 and 1978, the percentage declined by 11.20 percent).
- b. By contrast, the share of translations in the scientific field doubled between the years 1950 and 1978; so did the proportion of translations of works concerned with arts and sports.
- c. The proportion of translations in the fields of history, geography, biography greatly declined, despite the fact that the absolute number of translations in these disciplines had continued to grow.
- d. It was only in the fields of philosophy, religion-theology, and in general subjects that the proportion of translations had remained unchanged, compared with translations in all other subjects. (see Fig. 2).

These statistics help to illustrate changes in general reading interests. Unfortunately, these figures, however, provide but limited evidence regarding shared values and differences as between different nations and countries. For instance, the high percentage of translations in scientific subjects in 1933 derives in large measure from the large number of translations made in this field in the Soviet Union. (In that year, 822 translations were published in the world; of these 485 translations, that is to say nearly half of them - 49 percent to be exact - were made in the USSR).

While these overall statistics lack definitive value for the purpose of making generalizations, these figures do, however, illustrate tendencies of general developments.

For example, translations in the fields, of law, social sciences, and science advanced from a minor place in 1933 to the second rank in 1978 (just behind literature). At the same time, the interest in translations concerning history, biography, and geography diminished. This does not mean that all countries in the world shared in this decline. For instance, countries such as India, South Korea, Nigeria, Peru, and the Philippines were interested mainly in translations in the religious field. In the U.S.A., Italy, Spain, Pakistan, Egypt, and Sri Lanka translations in the field of religion occupied, however, the second place in 1978.

For all their limitations, the above statistics do therefore illustrate moving in preferential patterns concerning the intellectual tastes in different countries, by nations and cultures. The countries selected in the present study accounted for 78 percent of all the world's translations in 1933; 70 percent of all translations in 1950; and 65 percent of all translations in 1978. These statistics do therefore possess a considerable value for generalizations.

TABLE 3

## TRANSLATIONS: WORLD TOTAL BY CLASSIFIED FIELD OF TRANSLATIONS

YEAR	M	P	R	S	O	L	U	A	T	H	TOTAL
1933	101	590	(1)	(2)	691	410	858	(3)	3,344	563	5,866
1950	56	494	660	316	1,526	1,051	363	599	5,426	1,021	10,014
1978	343	2,857	3,355	3,886	10,441	7,703	4,195	4,932	26,173	3,600	57,147

## TRANSLATIONS: WORLD TOTAL BY CLASSIFIED FIELD OF TRANSLATIONS (BY PERCENT)

YEAR											
1933	1.73%	10.05%	0.00%	0.00%	11.78%	6.99%	14.63%	0.00%	57.00%	9.60%	100.00
1950	0.56%	4.93%	6.59%	3.16%	15.24%	10.50%	3.62%	5.98%	54.18%	10.20%	99.72
1978	0.60%	5.00%	5.87%	6.80%	18.27%	13.48%	7.34%	8.63%	45.80%	6.30%	99.82

- (1) Combined with philosophy in 1933  
 (2) Combined with literature in 1933  
 (3) Combined with pure science in 1933

LEGENDS: M = miscellaneous and generalities

P = philosophy

R = religion

S = sports and art

O = other, the sum of the previous four categories

L = law and social science

U = pure science

A = applied science

T = literature

H = history, geography, and biography

## SOURCE:

Index Translationum

1933

1950

1978

FIGURE 1

# TRANSLATIONS, WORLD TOTAL BY FIELD OF TRANSLATIONS

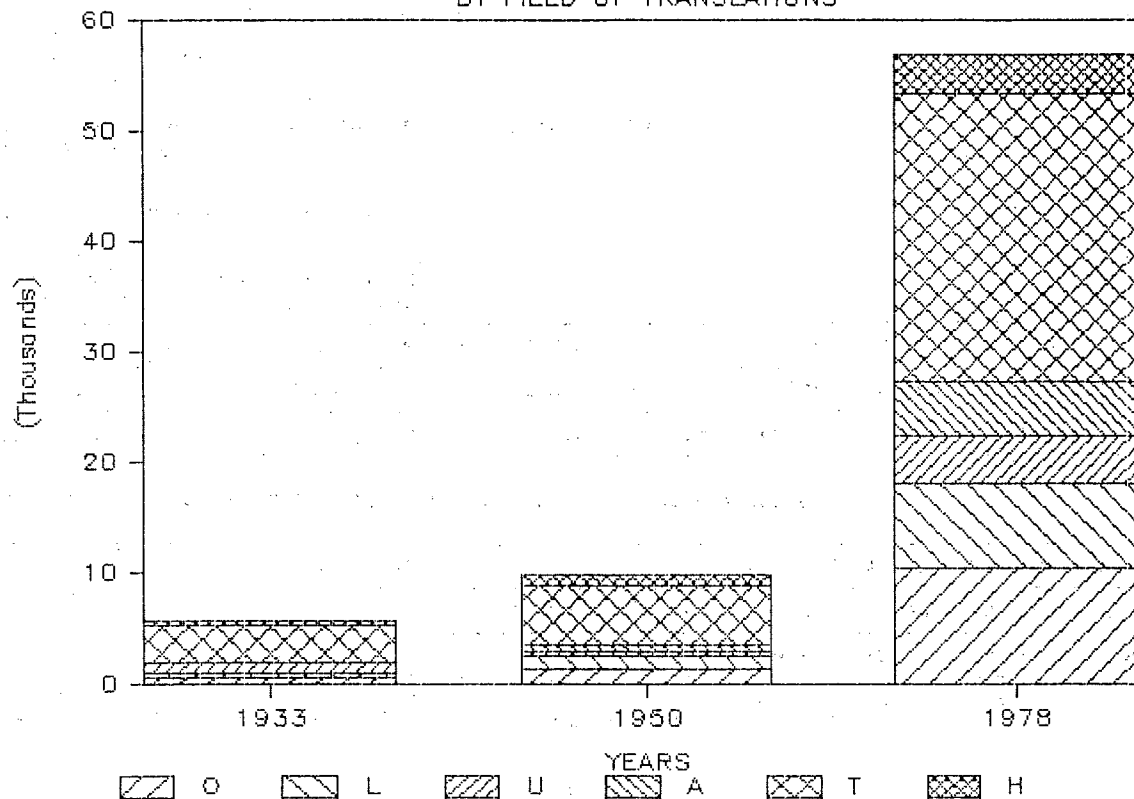
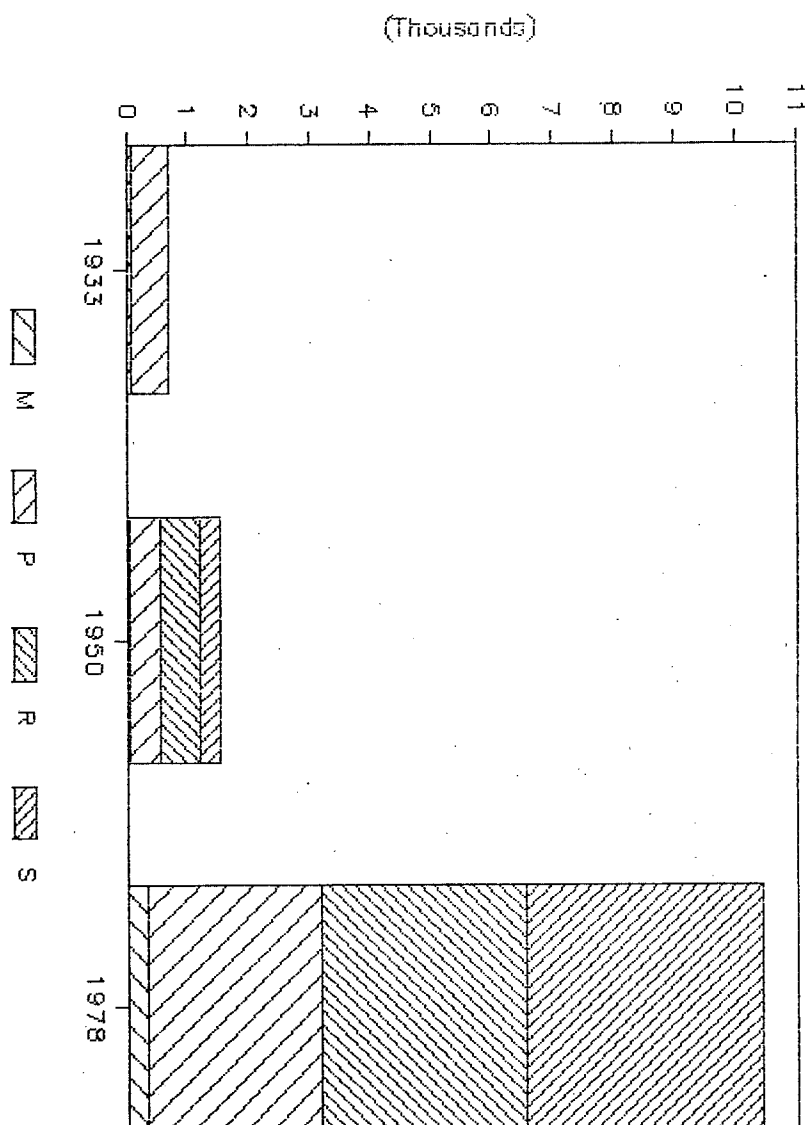


FIGURE 2

# TRANSLATIONS, WORLD TOTAL DETAIL OF "OTHER"





## STATISTICAL METHODS

We decided to limit the scope of this study to 18 countries: Denmark, Finland, Norway, Sweden, Czechoslovakia, East Germany, Hungary, Poland, Rumania, Yugoslavia, France, West Germany, Italy, Spain, U.K., U.S., Canada and the Soviet Union, and to treat all other countries together. We chose these countries to be representative of the world as a whole with regard to translations. We will compare these nations on the basis of which languages they translate from and in what fields they translate. The languages we consider are English, French, German, and Russian (the four most-translated languages), as well as Scandinavian languages as a group and all other languages as a group. We use Universal Decimal Classification classes as an index for classifying the field of the translations, considering social sciences, pure sciences, applied sciences and literature as separate fields grouping geography, biography and history together under the heading "history," and combining other subjects (generalities, philosophy, religion and arts) together under the heading of "other".

The original data consist of three 2 by 2 contingency tables for each year. The first table for each year lists the number of books translated, indexed by country translating and original language. The second lists the number of translations by country translating and subject of the book, and the third lists translations by original language and subject. We chose to look at three two-year periods - 1960-61, 1970-71, 1977-78. Some of the table entries were missing - these we estimated from the number of translations in the previous and following year.

This study is solely descriptive. There are no significance tests performed, for three reasons: (1) Any significance test is based on assumptions about the random process generating numbers in the tables. For tables of this type the usual assumption is that an entry in the table is poisson with some mean, independent of the number of translations in other years and in other entries of the table. This assumption does not seem justified, either based on our understanding of the problem or based on an inspection of the tables. (2) Estimation of missing values would cause tests to be biased. (3) The differences in patterns of translations by country, by original language and by subject are so great as to make significance tests unnecessary.

Most of the methods used are simple descriptive statistics. Only correspondence analysis may be unfamiliar - its use is fairly new in this country, although it is more widespread in France. While part of its justification lies in the classical assumptions for contingency tables, assumptions which we do not wish to make here, it is still useful as a descriptive method.

Computation and graphics were done using "S", a statistical package written by Richard Becker and John Chambers of Bell Labs.

## BEGINNING OF ANALYSIS

What can we notice from the pattern of translations? The number of translations grew steadily over the period from 1960-1978, from a total of 64,308 in 1960-61 to 83,014 in 1970-71 (an increase of 29 %) to 107,194 in 1977-78 (67 % over the first period). It is interesting to compare these figures to the number of translations listed by Index Translationum in 1932. At that time six countries included in the tables, translated a total of 3,208 books. In 1978 these six countries translated 22,409 books, an almost seven-fold increase in 45 years.

There are marked differences in growth of translations for different countries. We divided the countries in our study into six groups: Scandinavian, Eastern European, Western European, English-speaking, Soviet Union, and other countries. The increase in the first ten years ranged from a high of 67 % for the Scandinavian and English-speaking countries to a drastic decline of -22 % for the Soviet Union. These patterns did not continue, however: in the next eight years the number of translations by Scandinavian countries actually declined by 1 %, by English countries by 8 %, while the number of translations by the Soviet Union increased by 78 %. The greatest overall increase from the first period to the last was registered by the Western-European group, with an overall increase of 142 % (see Table 4).

Table 4

Translations by Group of Country of Publication

Number of Translated Books

Group:	1960-61	1970-71	1977-78
Scandinavia	6259	10452	10380
East Europe	904	10874	12313
West Europe	15022	23337	36441
UK & US	3738	6234	5754
Other	20068	24281	28344
USSR	10174	7846	13962

Percent Increase over 1960-61

Group:	1970-71	1977-78
Scandinavian	67.0	65.8
East Europe	20.2	36.1
West Europe	55.4	142.6
UK & US	66.8	53.9
other	21.0	41.2
USSR	-22.9	37.2

When looking at the performance of individual countries within the groups (see Table 5), it quickly becomes clear that the groups are not homogeneous. The overall increase in the Scandinavian group ranged from an overall increase of 188 % for Denmark to a gain of 24 % by Sweden. Norway doubled the number of translations during the first ten years, but then suffered a drop of 30 %. Among the East-European group the growth ranged from -25 % for Czechoslovakia to 146 % for Hungary, in Western Europe the growth ranged from 37 % for Italy to 262 % for Spain, and among English-speaking countries the rates were 18 % for the U.S. and 137 % for the United Kingdom.

Table 5

Translations by Country

Number of Translated Books

	1960-61	1970-71	1977-78
<hr/>			
Country:			
Denmark	1365	3037	3933
Finland	1211	1608	1649
Norway	1504	3023	2105
Sweden	2179	2784	2693
Czech.	3445	2647	2575
DDR		846	1671
Hungary	854	1895	2100
Poland	1508	1644	1923
Rumania	1329	1461	1310
Yugosl.	1911	2381	2734
France	3105	3892	8350
Germany	6262		
BRD	9718	13727	
Italy	2722	3644	3724
Spain	2933	6083	10640
UK	1128	1373	2672
US	2610	4861	3082
other	20068	24281	28344
USSR	10174	7846	13962

Percentage increase from 1960-61

	1970-71	1977-78
<hr/>		
Country:		
Denmark	122.5	188.1
Finland	32.8	36.2
Norway	101.0	40.0
Sweden	27.8	23.6
Czech.	-23.2	-25.3
Hungary	121.9	145.9
Poland	9.0	27.5
Rumania	9.9	-1.4
Yugosl.	24.6	43.1
France	25.3	168.9
Germany	68.7	145.9
Italy	33.9	36.8
Spain	107.4	262.8
UK	21.7	136.9
US	86.2	18.1
other	21.0	41.2
USSR	-22.9	37.2

Should we perhaps group countries according to growth rates? Our original groups do not seem to adequately explain the differing growth rates of countries; perhaps there are other factors operating that cause Denmark, Hungary, France, Germany, Spain and the U.K. to all have overall growth rates greater than 135 %, while all other countries have rates between 18 % and 42 %, except for Rumania and Czechoslovakia, which are actually declining. We will later compare nations based on what subjects and from what languages they translate, to see whether those patterns support the geographical/political groups or the new, growth-rate based groups.

There are also great differences in the growth rates of translations when categorized by subject, but here we can note more of a pattern (see Table 6). The greatest growth rates were in the sciences (social, pure and applied) and in "other" subjects (generalities, philosophy, religion, and arts). The growth rates in literature and in history were smaller. With the exception of applied sciences, which had a smaller growth rate than other subjects, the number of translations in sciences grew faster than in the liberal arts. Furthermore, with one exception, the growth rates remained roughly the same between the two periods. The exception is history, geography, biography, which declined between 1970-71 and 1977-78, to finish with the smallest overall growth rate of any subject.

Table 6  
Translations by subject

Number of Translated Books

	1960-61	1970-71	1977-78
Subject:			
social	6350	10612	14591
pure	3149	5058	9036
applied	5104	7033	9029
lit	34859	40040	49595
history	5522	6860	6273
other	9324	13421	18670

Percent increase from beginning

	1970-71	1977-78
Subject:		
social	67.1	129.8
pure	60.6	186.9
applied	37.8	76.9
lit	14.9	42.3
history	24.2	13.6
other	43.9	100.2

There are smaller differences in the rates of growth of translations when categorized by original languages (see Table 7). English-language books were translated most readily, showing both the largest number of translations and the greatest rate of increase, and reflecting the growing attention to the English scientific and cultural contributions. Translations from Russian showed the smallest rate of increase, after actually declining until 1970-71.

The two languages which showed a similar, steady rate of growth are English and Scandinavian. While French and German started out very similar, with a 10-year increase of 36 %, the growth rate of French dropped off very sharply while German continued with a strong rate of growth. Other languages as a group began with a moderate rate of growth between the first two periods, but finished with an increased rate of growth, finishing with an overall growth rate slightly larger than French.

For comparison, the most translated language not listed separately is Italian, with 2991 translations in 1977-78, followed by Swedish (included with Scandinavian), Spanish with 1428 and Danish (Scandinavian). Five of the next six most common languages are spoken in Eastern-European nations; the other is Dutch. The most-translated non-European language was Chinese, in fifteenth place, with 517 translations. Thus the vast majority of translations are in European languages.

Table 7

Translations by Original language

Number of Translated Books

	1960-61	1970-71	1977-78
Language:			
English	22038	33635	43292
Russian	9886	8091	13516
French	8238	11218	12274
German	6144	8357	10318
Scand.	2148	3272	4080
Other	15854	18451	23714

Percentage increase over 1960-61

	1970-71	1977-78
Language:		
English	52.6	96.4
Russian	-18.2	36.7
French	36.2	49.0
German	36.0	67.9
Scand.	52.3	89.9
Other	16.4	49.6

The tables to this point have been simple tables listing the number of translations, indexed by country publishing, group of country, subject of original language, for each of the two-year periods. The tables in the UNESCO yearbooks give us more information than this - they are actually two-way tables, listing number of translations by country publishing and original language, country and subject, and original language and subject.

### INTERACTIONS

What can we learn about interactions between subject translated, original language and country publishing? For instance, both the number of translations by the Soviet Union and from Russian declined from 60-61 to 70-71, then increased beyond the original level. This is not a coincidence - about half of all books published in the Soviet Union were translations from Russian into other languages, and conversely half of all translations from Russian were published in the Soviet Union. Any increase or decrease in the number of translations published by the Soviet Union should cause a corresponding change in the number of translations from Russian, and vice-versa. In fact, the decline and subsequent rise in Russian books published by the Soviet Union (-27 %, 74 %) was much more extreme than for Russian books published elsewhere (-11 %, 3 %) or books from other languages published in the Soviet Union (-20 %, 6 %). We might surmise that the USSR has a commitment to publishing books from Russian, either to distribute abroad or in its own non-Russian republics, and that this commitment was weaker in 1970-71 but renewed in 1977-78. Perhaps the same phenomena is operating in Czechoslova-

kia and Rumania - that these countries attempt to bridge the different cultures within their countries by translating books between their different languages. Czechoslovakia showed the same magnitude of decline in translations in the first ten years that the Soviet Union did, but did not observe a subsequent rise, while Rumania, after a small initial increase, finished with an overall decline. Other evidence supports this conclusion - in 1960 Czech was the fifth largest language and Rumanian the twelfth, in 1970 Czech the seventh and Rumanian the fourteenth, and in 1978 Czech was the ninth largest language and Rumanian again the fourteenth.

In a similar vein, the number of translations in scientific fields is growing, and it might be interesting to know which countries are leading this rush to a technical future, or which languages are serving as sources for technical translations. We'll look at the second question first.

From Table 8 it is clear that the share of translations devoted to the sciences and to "other" subjects is increasing.

Table 8

Percentage of Total Translations by Subject

	1960-61	1970-71	1977-78
<hr/>			
Subject:			
Social	9.87	12.78	13.61
Pure	4.90	6.09	8.43
Applied	7.94	8.47	8.42
Lit	54.21	48.23	46.26
History	8.59	8.26	5.85
Other	14.5	16.17	17.42

The corresponding proportions for each language can be read in Table 6:

Table 9

1960-61							
	Social	Pure	Applied	Lit	Hist	Other	Total
English	6.7	5.1	7.1	63.5	8.3	9.3	100
Russian	21.8	7.7	14.2	42.1	6.3	7.8	100
French	6.5	2.9	4.1	51.6	10.5	24.4	100
German	8.5	6.2	10.7	36.8	12.6	25.2	100
Scand.	2.1	3.0	4.4	65.5	13.3	11.7	100
Other	10.2	3.7	6.6	55.4	7.2	17.0	100
Average	9.9	4.9	7.9	54.2	8.6	14.5	

1970-71

	Social	Pure	Applied	Lit	Hist	Other	Total
English	10.5	7.5	8.5	55.8	7.1	10.6	100
Russian	24.3	11.1	10.7	37.3	7.1	9.4	100
French	10.6	3.2	5.2	48.3	10.5	22.0	100
German	12.9	6.2	11.7	29.8	10.2	29.2	100
Scand.	6.2	3.3	11.8	57.2	9.1	12.3	100
Other	14.3	3.6	7.3	45.9	8.5	20.5	100
Average	12.8	6.1	8.5	48.2	8.3	16.2	

1977-78

	Social	Pure	Applied	Lit	Hist	Other	Total
English	8.2	8.7	9.3	54.1	5.1	14.7	100
Russian	31.7	14.7	7.4	30.4	6.9	8.8	100
French	11.0	5.8	7.5	45.3	7.2	23.3	100
German	14.1	8.1	13.1	31.9	6.2	26.5	100
Scand.	6.0	5.6	9.2	62.9	4.5	11.8	100
Other	15.7	6.4	5.6	44.9	6.1	21.3	100
Average	13.6	8.4	8.4	46.3	5.9	17.4	

Percentage change since 1960-61

Period: 1970-71

	Social	Pure	Applied	Lit	History	Other
English	4	2	1	-8	-1	1
Russian	3	3	-3	-5	1	2
French	4	0	1	-3	0	-2
German	4	0	1	-7	-2	4
Scand.	4	0	7	-8	-4	1
Other	4	0	1	-9	1	3

Period: 1977-78

	Social	Pure	Applied	Lit	History	Other
English	1	4	2	-9	-3	5
Russian	10	7	-7	-12	1	1
French	4	3	3	-6	-3	-1
German	6	2	2	-5	-6	1
Scand.	4	3	5	-3	-9	0
Other	5	3	-1	-10	-1	4



With only a couple exceptions, the declines in literature and history and increases in the sciences are found in translations from every language (see Table 9). The increase in proportion of translations in "other" subjects is due to increases in English and other languages, the two largest group of languages. These two languages showed the smallest move toward the sciences, 7 % each, while the other languages ranged between 10 % and 12 %. For Russian and other languages there was a shift from applied sciences to social and pure sciences; from the other languages the scientific growth was even in all three fields.

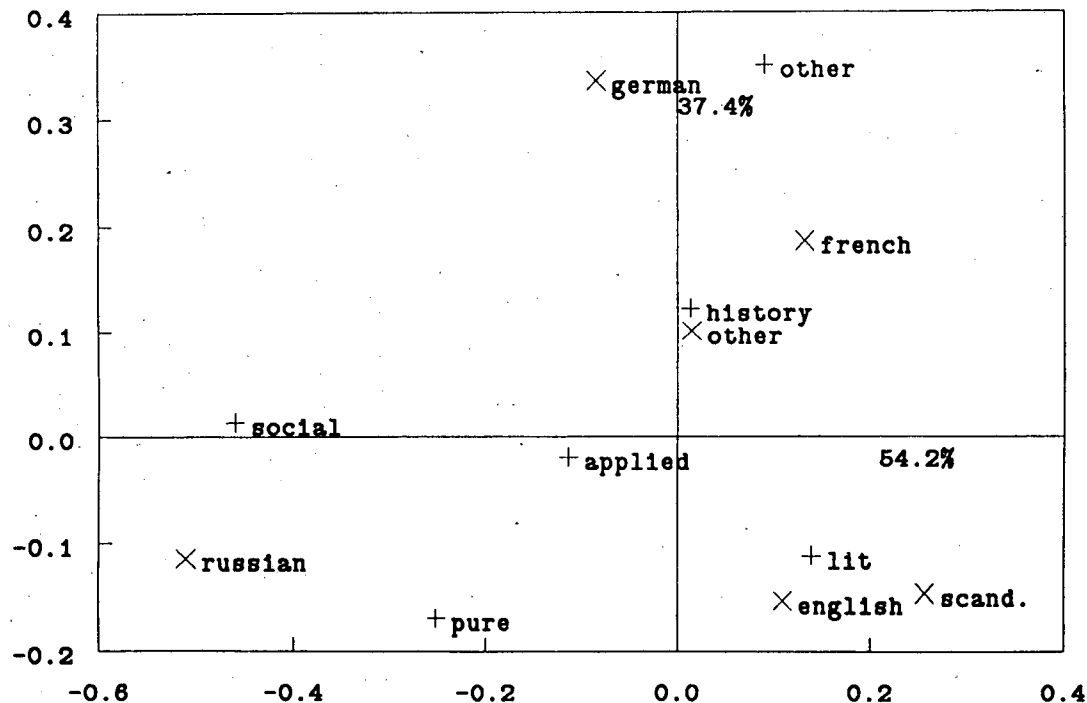
There are other interesting characteristics in this table. We can describe subjects in terms of leading languages. For example, Russian, and to a lesser extent, "other" languages, are definite leaders in the social sciences, in that of all the languages, the languages with the largest percentage of translations in social sciences is consistently Russian by a wide margin. Russian is also a leader as a source of pure science translations, with German generally second, while in the applied sciences the lead changes from Russian to German. In literature the leaders are consistently Scandinavian and English. Scandinavian languages are the leader in history in the first period, but fall sharply to end with the lowest percentage, with German showing the same trend, while French is consistently a leader and Russian starts low and finishes second. In "other" subjects German, French and other languages are the leaders, in that order, all three periods.

#### CORRESPONDENCE ANALYSIS

To make traits such as these more noticeable, as well as to graphically illustrate which languages and which subjects are the most similar, we turn to the methods of correspondence analysis, a method of simultaneously plotting rows and columns of a contingency table on the same set of axes. Correspondence plot 1 (subject of translation vs original language, sum of three periods) confirms that English and Scandinavian books were most often translated in literature and Russian books in the sciences, while German books were disproportionately translated in "other" subjects, a trait shared to a lesser extent by books originally written in French. The applied sciences and history were translated about equally from all languages, and "other languages" as a group were relatively evenly translated in all subjects.

Some care needs to be used in the interpretation of a correspondence plot. We first consider one set of points, e.g. the points for subjects. The relative distances of these points indicates how similar the subjects are with respect to their pattern of translations; social and pure sciences are much more similar to each other than either is to "other" subjects. The distance of a points from the origin indicates how different a subject is from the average of all subjects. Applied sciences and history are relatively close to the origin. So too is literature, but this is deceptive - because the average is weighted by the number of translations in a subject, and there are so many translations in literature, the average of all subjects tends to be close to literature. The distance between literature and the average of the other subjects is greater. Only now do we look at the other set of language points, one at a time, considering where each lies in relation to the whole set of subject points, not to particular subject points. We might interpret a language to the left as being strong in the sciences; this is Russian. The languages to the lower right is stronger in literature; these are the Scandinavian languages and English, although we do notice that English is further in the direction of the sciences. Languages toward the top are associated with other subjects; here we find German and French, with German stronger in the sciences and French in literature.

Correspondent Plot I



eigenvalues are: 0.042 0.029 0.006 0  
sum of eigenvalues is 0.078

This analysis done we can do the same thing starting with the other set of points. We can again interpret the distance between points of the same group, but only directions when comparing points to the other group.

Keep in mind, also, that a correspondence plot only shows as much as is possible on a flat sheet of paper. If the percentages of variance shown by the two axes (in this case 54 % and 37 %) together are close to 100 %, this approximation would be good. If not we would need a three or more dimensional plot to adequately show the correspondences, and a two-dimensional plot will be deceptive.

Correspondence plot 2 shows translations by country translating and original language, again for all three periods together. The most striking characteristic of this plot is that our original groupings of countries seem to be largely confirmed. The Scandinavian countries are closely grouped in the upper left of the plot, characterized by many translations in Scandinavian languages and English. The Soviet Union and East Germany are similar, with many translations from Russian. The other Eastern European nations are closely grouped, with more translations from German, French, other languages and possibly English than the Soviet Union and East Germany. The U.K. are similar, with many translations from French and German. The Western European group consists of the pairs Spain and Italy and France and West Germany, with the former pair translating more French and German, the latter more English and Scandinavian, but both pairs quite similar. The main difference turns out to be that West Germany translates very few books from German and France very few books from French, but that otherwise the four countries are quite similar.

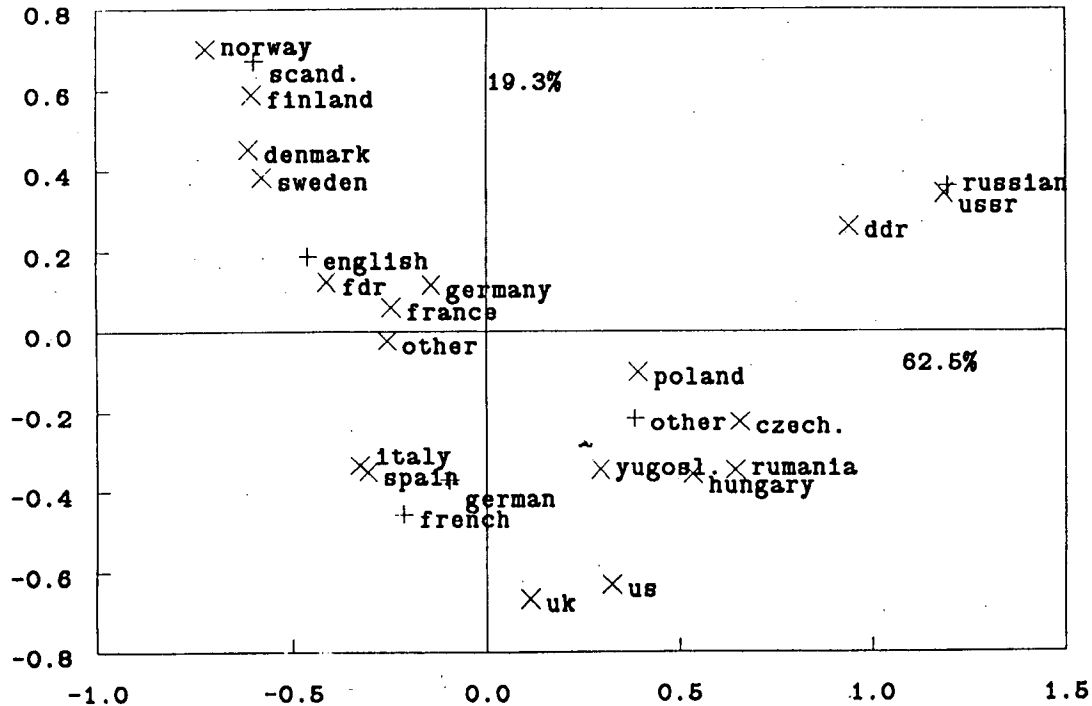
It is characteristic of all the Western nations that they translate very few books from their own languages. This is in sharp contrast to the Eastern-bloc nations with large minorities (Russia, Rumania, Czechoslovakia), who translate many books from their official languages.

We can confirm these observations by the use of Table 10, as well as to look for changes in these patterns over time. The Scandinavian countries are easy. They translate the most Scandinavian languages and among the most English, and are also remarkably stable in their patterns over the three periods. Only Norway changes significantly, with a shift in translations from English to Norwegian. The decline of translations from English into Norwegian is linked to the increase in the world exports of books in English. This development, in turn, is connected to the spread and success of English language instruction throughout the world.

For instance, the U.S. Census Bureau indicates that, in 1964, the U.S. exported to Norway a total of 175,021 books covering all subjects, with a total value of \$ 57,960. In 1983, the number of textbooks, technical, scientific and professional books exported to Norway alone had risen to 230,030 with a total value of \$ 840,310.

This phenomenon is not new; neither is the readers' ability to read several languages. In comparison with the 18th and 19th centuries, the percentage of readers able to read another language in addition to their mother tongue has greatly increased in Europe.

Correspondence Plot 2



eigenvalues are: 0.097 0.05 0.032 0.009  
sum of eigenvalues is 0.502

Table 10

Translations by country and original language

1960-61

	English	French	German	Russian	Scand.	Other	Total
Denmark	51.9	9.2	11.0	1.9	17.2	8.7	100
Finland	51.2	6.5	11.1	2.6	20.5	8.1	100
Norway	74.9	3.3	4.3	0.7	13.4	3.5	100
Sweden	61.8	6.9	10.2	2.5	10.5	8.1	100
Czech.	6.5	4.4	7.5	24.7	1.0	55.8	100
Hungary	15.1	15.7	18.1	26.5	1.3	23.3	100
Poland	22.7	12.6	11.2	23.6	2.0	27.9	100
Rumania	4.6	3.9	5.0	43.3	0.3	42.8	100
Yugosl.	20.0	13.6	11.3	11.9	2.3	41.0	100
France	50.2	3.3	13.5	4.4	2.6	26.0	100
Germany	46.0	18.2	0.1	10.9	5.5	19.3	100
Italy	40.6	27.8	14.3	2.9	1.4	13.0	100
Spain	43.9	23.5	16.2	1.3	1.4	13.6	100
UK	1.1	33.2	20.3	8.7	5.0	31.7	100
US	0.3	32.7	22.1	12.5	4.6	27.7	100
USSR	11.4	3.4	5.4	45.7	0.8	33.3	100
Other	45.3	13.9	5.3	7.6	1.8	26.2	100
Canada	46.9	18.4	7.1	1.0	0.0	26.5	100
Average	34.3	12.8	8.0	15.4	3.3	26.2	

1970-71

	English	French	German	Russian	Scand.	Other	Total
Denmark	61.4	6.8	8.4	1.3	14.9	7.2	100
Finland	55.7	6.7	7.2	3.2	21.2	6.0	100
Norway	67.3	3.5	4.8	1.2	18.8	4.5	100
Sweden	64.3	8.1	8.4	2.1	11.1	6.0	100
Czech.	18.1	11.9	10.5	10.8	1.6	47.2	100
DDR	13.7	7.9	5.6	42.3	2.0	28.5	100
Hungary	11.9	8.3	9.3	10.7	0.5	59.3	100
Poland	23.7	11.0	9.9	19.9	2.7	32.8	100
Rumania	13.1	15.3	5.9	7.3	0.8	57.7	100
Yugosl.	19.1	10.3	10.6	12.5	1.0	46.5	100

France	56.2	1.5	15.0	4.4	1.8	21.0	100
BRD	60.2	14.3	1.3	3.2	4.2	16.7	100
Italy	40.1	25.7	15.3	3.3	1.2	14.3	100
Spain	34.2	28.3	13.1	2.9	1.4	20.2	100
USSR	12.1	3.6	5.1	43.5	1.1	34.7	100
UK	0.1	31.0	28.5	5.0	8.0	27.5	100
US	0.6	23.0	22.1	14.8	4.1	35.4	100
Other	51.9	14.2	11.1	5.6	1.9	15.4	100
Canada	65.0	17.3	11.2	1.0	0.5	5.1	100
Average	40.5	13.5	10.1	9.7	3.9	22.2	

1977-78

	English	French	German	Russian	Scand.	Other	Total
Denmark	51.2	8.6	10.3	1.3	21.0	7.6	100
Finland	52.9	5.1	8.6	3.0	23.8	6.6	100
Norway	60.5	2.8	5.6	1.7	24.6	4.8	100
Sweden	60.0	7.4	8.2	2.2	13.1	9.1	100
Czech.	10.1	5.0	8.2	26.7	1.3	48.7	100
DDR	13.1	7.7	0.1	41.4	3.5	34.2	100
Hungary	10.8	4.1	8.5	13.9	0.9	61.8	100
Poland	21.0	8.7	10.5	17.4	2.7	39.8	100
Rumania	8.5	11.3	5.9	3.5	0.5	70.3	100
Yugosl.	20.2	9.1	12.3	7.0	1.8	49.7	100
France	54.8	3.8	10.6	4.3	2.1	24.4	100
BRD	59.1	13.0	5.2	3.1	3.7	15.8	100
Italy	45.0	24.9	14.2	2.8	0.9	12.3	100
Spain	42.4	25.0	12.7	2.1	1.9	15.9	100
USSR	7.7	2.4	3.5	58.1	0.6	27.7	100
UK	7.1	24.4	21.3	6.9	6.5	33.7	100
US	1.6	24.3	20.7	10.6	4.6	38.2	100
Other	54.6	11.4	11.6	4.9	1.6	15.9	100
Canada	66.4	14.6	5.4	2.4	0.5	10.8	100
Average	40.4	11.5	9.6	12.6	3.8	22.1	

Change from 1960-61

Period: 1970-71

Language: English Russian French German Scand. Other

Country:

Denmark	10	-1	-2	-3	-2	-1
Finland	4	1	0	-4	1	-2
Norway	-8	0	0	1	5	1
Sweden	3	0	1	-2	1	-2
Czech.	12	-14	7	3	1	-9
Hungary	-3	-16	-7	-9	-1	36
Poland	1	-4	-2	-1	1	5
Rumania	8	-36	11	1	0	15
Yugosl.	-1	1	-3	-1	-1	6
France	6	0	-2	1	-1	-5
Italy	0	0	-2	1	0	1
Spain	-10	2	5	-3	0	7
UK	-1	-4	-2	8	3	-4
US	0	2	-10	0	-1	8
Other	7	-2	0	6	0	-11
USSR	1	-2	0	0	0	1

Period: 1977-78

Language: English Russian French German Scand. Other

Country:

Denmark	-1	-1	-1	-1	4	-1
Finland	2	0	-1	-3	3	-1
Norway	-14	1	0	1	11	1
Sweden	-2	0	0	-2	3	1
Czech.	4	2	1	1	0	-7
Hungary	-4	-13	-12	-10	0	39
Poland	-2	-6	-4	-1	1	12
Rumania	4	-40	7	1	0	27
Yugosl.	0	-5	-5	1	0	9
France	5	0	1	-3	-1	-2
Italy	4	0	-3	0	-1	-1
Spain	-2	1	1	-3	1	2
UK	6	-2	-9	1	2	2
US	1	-2	-8	-1	0	10
Other	10	-3	-2	6	0	-10
USSR	-4	12	-1	-2	0	-6

The Eastern-European countries generally shift from Russian to "other" languages, but this generalization is insufficient - each country is different and the countries are not stable over time. Czechoslovakia begins by translating 56 % from "other" languages, 25 % from Russian and small amounts from other languages, cuts back sharply to 47 % and 11 % other and Russian with much larger amounts of English, French and German, and rebounds to translate 49 % and 27 % other and Russian. East Germany, for which we have figures separate from West Germany only for the second two periods, translates the most Russian of any country except Soviet Union, together with relatively moderate amounts of "other" languages - less than any other Eastern-European country, though still far above the world average. Hungary is notable for an exceptional increase in the number of translations of "other" languages between the first two periods, from 23 % to 59 %, then remaining stable. Rumania exhibits an equally striking drop in the amount of Russian translated during the first ten years, from 43 % to 7 %, and further to 48 % while showing a steady increase in translations from "other" languages, from 43 % to 58 % to 70 %, the largest figure for any country, and also translated relatively much French during the final two periods, 15 % and 11 %. Only Poland and Yugoslavia are similar and stable, characterized by large amounts of English for communist countries, although Poland does consistently translate 10 % more Russian and 10 % less "other" than does Yugoslavia.

The Western European countries are much more stable, with the only change of greater than 6 % shown by Spain, a decline and subsequent rise in proportions of English translations from 44 % to 34 % to 42 % and rise/decline of "other" languages from 14 % to 20 % to 16 %. The overall translation patterns agree well with the correspondence plot - many translations from English (especially France and West Germany) and French and German (especially Spain and Italy).

The Soviet Union also appears rather stable over with respect to the pattern of translations (although not with respect to the number of translations, as we have already seen). The only noteworthy change is an increase of 12 % in the number of translations of books originally written in Russian.

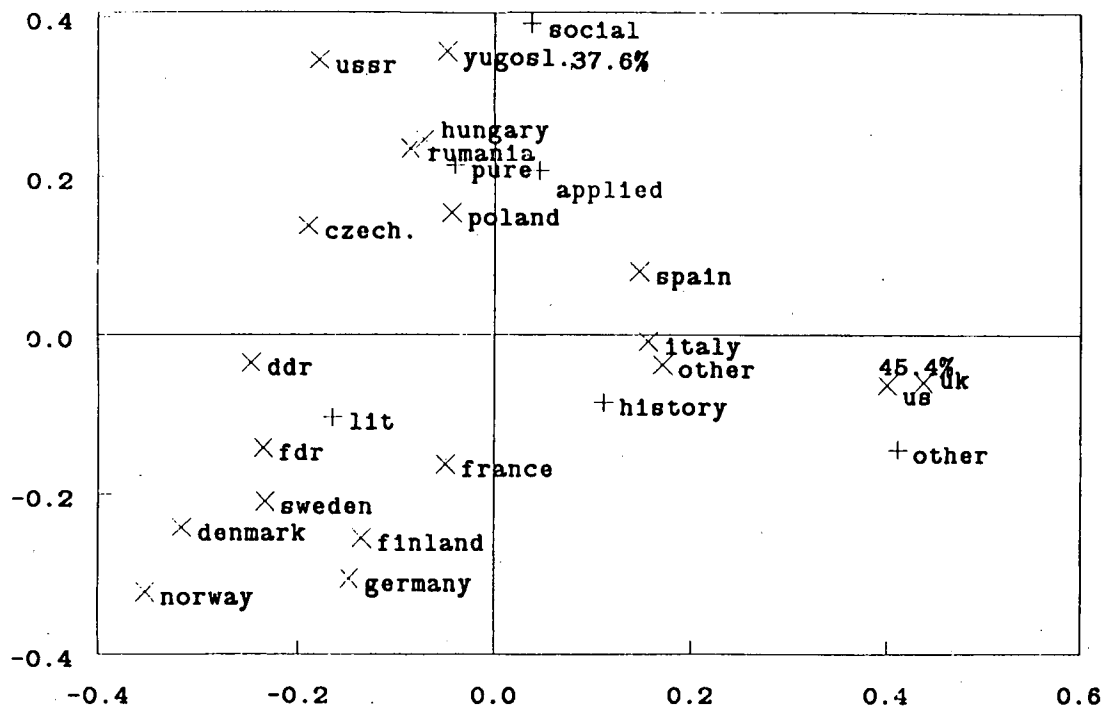
The U.K. and U.S. are moderately stable and similar to the Western-European nations, except that they translate very little English and proportionately more of every other language except Scandinavian. These two nations translated more French and German than any other countries during the first two periods. The proportion of French translations was declining, however, and both Italy and Spain translated slightly more French in the last period. The two English-speaking countries and Germany/West Germany, also translated the most Scandinavian (after the Scandinavians). The U.S. consistently translated more Russian, perhaps due to its status as one of the two world powers, and translated more from "other" languages as well during the final two periods.

Finally, the other countries of the world translated relatively much English, with this proportion increasing even faster than the worldwide increase in English, from 45 % to 52 % to 55 %. They translated average amounts of French and German, and smaller than average amounts of Russian, Scandinavian and "other" languages.

In general, the relationships we noted in the correspondence plot have been supported, although the Eastern-European countries and Russian changes greatly over time, changes which were not shown in the correspondence plot.



Correspondence Plot 3



eigenvalues are: 0.035 0.009 0.005 0.002  
sum of eigenvalues is 0.093

Correspondence plot 3, translations by country and subject, again confirms our original groupings of countries as indicative of the patterns of translations. The U.K. and U.S. are very similar and translate disproportionately in "other" subjects and history. The Scandinavian countries are very similar and translate a lot of literature. The Western European group consists of the same two pairs, although West Germany and France are actually closer to the Scandinavian group than they are to the Southern European pair, Spain and Italy. The Eastern European countries are relatively homogeneous and similar to the Soviet Union, translating strongly in the sciences, with the exception of East Germany, which is more similar to West Germany and translates literature.

## TRENDS

We again will try to confirm these findings and look for trends by inspecting the table of proportions translated in each subject by each country, Table 11. The Scandinavian countries translate large amounts of literature, and more among the leaders in this field every year. Furthermore, the rate of decline for the Scandinavian countries in literature is not as great as for the world as a whole. It is interesting that the Scandinavian languages also showed the smallest decline in the proportion of translations in literature. It seems that while the rest of the world is becoming less concerned with literature, the Scandinavian nations still remain interested in translating literature from each other. In contrast, in history the Scandinavian decline is steeper than the world as a whole. All of the Scandinavian countries translate as much or more history than the average in 1960-61, and Denmark and Norway begin among the leaders, 13 % and 11 % respectively, but all decline, so that in 1977-78 all Scandinavian countries translate 5 % or less in history, less than average. In the scientific fields the Scandinavian generally lag behind. In the first period they translate very small amounts in each of the scientific fields. In the applied sciences they grow faster than average, almost catching the rest of the world by the last period; in social sciences the group is mixed, with Denmark and Sweden growing faster than the world but Finland and Norway barely growing at all; in the pure sciences the Scandinavians grew very little, though the world as a whole grew strongly.

The Eastern-European nations are both less homogeneous and less stable than the Scandinavians, just as they were with regard to original language. Hungary first catches our eye. In the first period Hungary translated smaller than average amounts of everything except literature, but changed drastically over the next ten years, falling from 69 % to 38 % in literature and increased in everything else, from 17 % to 39 % in the sciences and 13 % to 22 % in history and other.

This trend continued - Hungary translated only 35 % literature in the last period, among the smallest of all nations, and translated more than average of everything else, including 19 % in the pure sciences, the most of any nation, and 51 % in the sciences as a group, the only nation over 50 %. Czechoslovakia and East Germany show the opposite trends - the proportion of translations in literature by these two nations actually increased (the only two other nations where this happened were the U.K. and U.S.), finishing above the world average, and the proportion of translations in the sciences declined. Poland remained relatively stable, with a smaller decline than average in literature and a slight decline in scientific translations with a small shift to applied from other sciences; in the last period it translated just about the same as the world average. Rumania began as the world leader in applied sciences but declined sharply; it increased its share in the

Table 11

Translations by country publishing and subject

1960-61	Social	Pure	Applied	Lit	Hist	Other	Total
Denmark	1.4	3.8	2.3	70.3	13.9	8.2	100
Finland	2.6	2.7	5.3	69.5	8.4	11.4	100
Norway	1.5	1.8	2.4	78.3	11.0	5.1	100
Sweden	1.4	4.1	4.4	70.8	9.1	10.2	100
Czech.	16.0	9.6	13.6	46.6	6.3	7.9	100
Hungary	6.2	4.2	7.0	69.3	5.9	7.4	100
Poland	15.5	8.3	10.7	48.9	7.3	9.2	100
Rumania	18.9	4.8	19.0	47.0	3.5	6.8	100
France	2.5	4.3	4.5	60.7	10.7	17.3	100
Germany	6.1	3.8	3.0	64.1	7.2	15.9	100
Italy	6.6	3.4	6.3	50.1	13.7	19.9	100
Spain	6.4	3.6	11.2	47.0	9.4	22.4	100
UK	8.2	9.8	3.5	21.0	9.6	47.9	100
US	4.6	9.5	6.2	32.5	15.5	31.7	100
USSR	16.6	6.0	13.0	52.8	6.2	5.4	100
Other	11.1	3.9	7.2	53.1	8.5	16.2	100
Canada	7.1	2.0	0.0	68.4	7.1	15.3	100
Average	9.9	4.9	7.9	54.2	8.6	14.5	
1970-71							
	Social	Pure	Applied	Lit	Hist	Other	Total
Denmark	5.4	2.4	4.8	70.9	6.6	9.9	100
Finland	7.6	3.6	10.4	55.7	6.7	16.0	100
Norway	5.5	2.5	5.9	69.4	6.6	10.0	100
Sweden	10.5	5.1	7.9	55.6	9.4	11.6	100
Czech.	11.1	6.4	12.2	55.8	6.6	7.9	100
DDR	19.0	5.8	6.3	57.3	5.1	6.5	100
Hungary	14.3	10.5	14.2	38.2	8.1	14.7	100
Poland	13.6	10.0	14.4	43.7	6.8	11.7	100
Rumania	16.9	5.6	10.1	50.4	7.0	10.0	100
Yugosl.	27.9	2.5	6.6	45.9	4.3	12.8	100
BRD	8.1	4.3	4.0	64.7	7.0	11.9	100
France	10.5	6.2	7.7	45.1	9.9	20.6	100
Italy	13.9	4.0	5.8	41.7	10.6	24.1	100
Spain	11.7	6.7	14.7	35.1	9.0	22.7	100

UK	10.1	4.9	4.7	37.9	13.0	29.5	100
US	11.5	10.0	7.0	29.2	15.4	26.9	100
USSR	16.3	9.1	9.9	50.9	5.5	8.2	100
Other	14.8	6.2	8.9	43.4	8.4	18.4	100
Canada	27.5	6.8	9.7	17.9	13.0	25.1	100
Average	12.8	6.1	8.5	48.2	8.3	16.2	

1977-78

	Social	Pure	Applied	Lit	Hist	Other	Total
Denmark	9.3	4.0	7.1	66.0	5.4	8.2	100
Finland	3.9	3.0	8.9	61.9	5.1	17.2	100
Norway	3.8	3.8	6.6	72.1	3.8	9.9	100
Sweden	7.2	4.2	6.2	66.3	5.3	10.8	100
Czech.	14.5	9.6	6.8	55.7	4.7	8.8	100
DDR	10.2	5.8	4.7	62.5	6.2	10.7	100
Hungary	17.4	18.7	14.7	35.4	6.8	7.0	100
Poland	12.8	7.9	13.1	44.1	6.7	15.4	100
Rumania	20.3	8.1	8.0	40.3	10.5	12.8	100
Yugosl.	30.0	4.6	5.5	44.6	4.8	10.5	100
BRD	5.4	12.0	7.8	57.6	8.5	8.7	100
France	8.9	6.4	6.4	57.4	6.5	14.4	100
Italy	14.0	14.0	11.6	34.2	10.1	16.1	100
Spain	14.8	5.6	14.9	41.4	6.9	16.3	100
UK	14.9	6.7	9.1	35.1	9.3	24.7	100
US	12.7	7.0	7.9	34.8	10.8	26.8	100
USSR	27.5	14.2	8.1	39.3	5.5	5.6	100
Other	12.1	6.6	6.8	39.1	2.7	32.8	100
Canada	13.9	4.1	16.0	24.2	13.6	28.1	100
Average	13.6	8.4	8.4	46.3	5.9	17.4	

Change from 1960-61

Period: 1970-71

	Social	Pure	Applied	Lit	History	Other
Denmark	4	-1	2	1	-7	2
Finland	5	1	5	-14	-2	5
Norway	4	1	3	-9	-4	5
Sweden	9	1	3	-15	0	1
Czech.	-5	-3	-1	9	0	0
Hungary	8	6	7	-31	2	7
Poland	-2	2	4	-5	-1	2
Rumania	-2	1	-9	3	4	3
France	8	2	3	-16	-1	3
Italy	7	1	0	-8	-3	4
Spain	5	3	4	-12	0	0
UK	2	-5	1	17	3	-18
US	7	0	1	-3	0	-5
Other	4	2	2	-10	0	2
USSR	0	3	-3	-2	-1	3

Period: 1977-78

	Social	Pure	Applied	Lit	History	Other
Denmark	8	0	5	-4	-9	0
Finland	1	0	4	-8	-3	6
Norway	2	2	4	-6	-7	5
Sweden	6	0	2	-4	-4	1
Czech.	-2	0	-7	9	-2	1
Hungary	11	14	8	-34	1	0
Poland	-3	0	2	-5	-1	6
Rumania	1	3	-11	-7	7	6
France	6	2	2	-3	-4	-3
Italy	7	11	5	-16	-4	-4
Spain	8	2	4	-6	-3	-6
UK	7	-3	6	14	0	-23
US	8	-3	2	2	-5	-5
Other	1	3	0	-14	-6	16
USSR	11	8	-5	-13	-1	0

other sciences but not as fast as the world as a whole, while Yugoslavia had a strong emphasis on social sciences and was the world leader for both periods for which we have separate figures.

The Western-European nations were rather homogeneous in the first period, translating small amounts of the sciences and more literature and "other" than average. Spain translated more applied sciences and other, Italy more history, and France less social sciences than the average of the group, but these were not major differences. The changes over the next ten years were very similar for all three countries - up in the sciences and "other", down in literature and history, and the magnitude of the changes was the same for each country. We now have figures for West Germany separate from East Germany; compared to the other Western nations, West Germany translated more literature and less of everything else. This changes during the next seven years - in pure and applied sciences and history - West Germany publishes more, in literature less, becoming more like the other Western nations, although in social sciences and "other" the proportion of translations does fall to far below the value of the others. France goes against the trend by translating a smaller proportion of books in the sciences in the last period, while Italy and Spain show gains in the sciences, Italy remarkably so - it now appears more like Hungary than does any other nation, differing only in that Italy publishes more "other" subjects (especially religion) than does Hungary. Hungary and Italy were the two nations that grew the most in the sciences, followed by Spain and the Soviet Union. The Soviet Union is solidly among the leaders in the translation of social and pure sciences each year, even increasing faster than the world average, but in the applied sciences shows a decline from 13 % to 9 %, while the world as a whole increased slightly. The share of translations in history and "other" remained consistently low, while the share of literature translations dropped faster than the world as a whole.

The U.K. and U.S. translate very little literature and large amounts of "other", average amounts of the sciences and more history than average. They start out translating more from other subjects than any nation, but this figure declines while the rest of the world increases, though they remain comfortably among the world leaders.

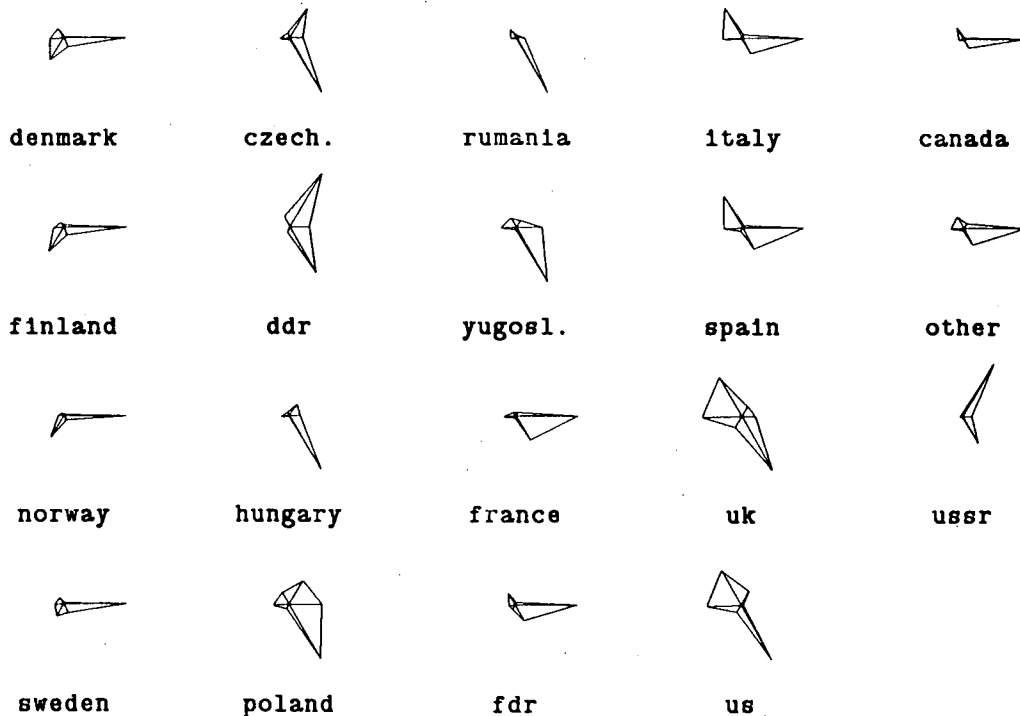
Other nations of the world, taken as a group, begin translating about average amounts of the sciences, rise faster than the world as a whole, but then decline. After starting out average in the amount of literature translated they drop sharply, from 53 % to 43 %, and then drop further to 39 %. Their translations in history remain steady, they drop off, while translations in "other" subjects increase strongly, from 16 % to 18 % to 32 %, more than any of the single nations in this study.

## STAR PLOTS

We can visually represent a country's pattern of translations by means of a star plot. To create a star for one nation for languages for a particular period we draw six spikes radiating from the center, with magnitudes of the spikes corresponding to the number of translations by the nation that year from each of the original languages. We connect the tips of these spikes to form stars for ease in detecting patterns; countries with similar shaped stars have similar patterns of translation. The size of the star is scaled so that the longest spikes are all the same, so that the areas of the stars are not proportional to the number of translations by that country.

Star Plot A

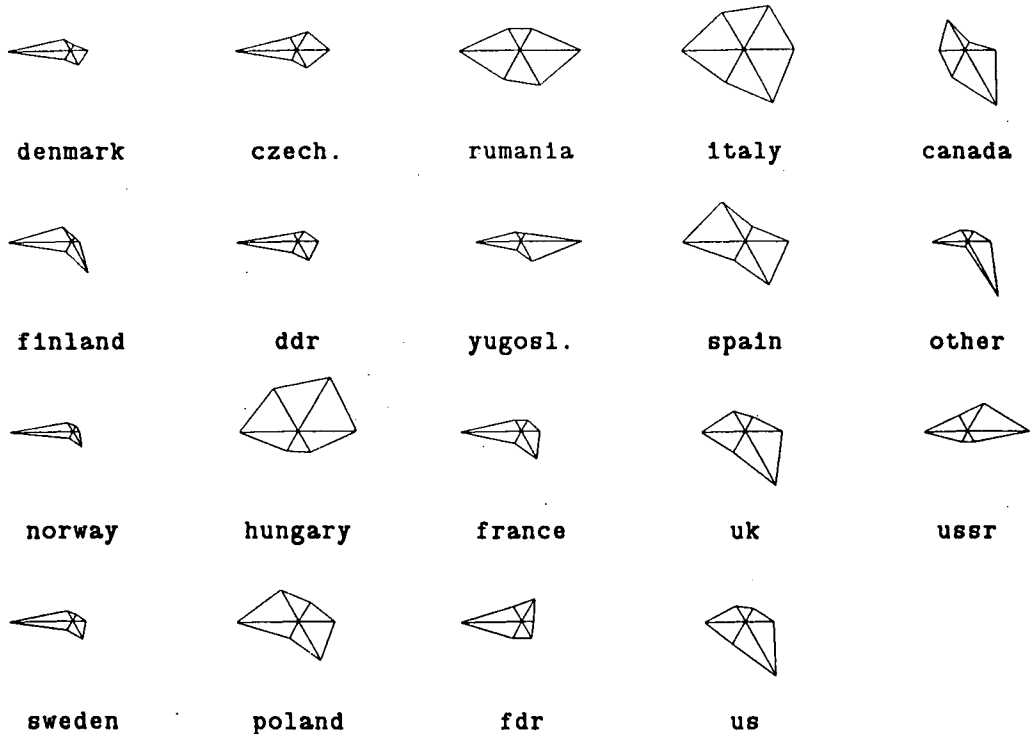
1977-78, country publishing, original language



english, russian, french, german, scand., other  
counterclockwise from right

Star Plot B

1977-78, country publishing, subject



social, pure, applied, lit/2, history, other  
counterclockwise from right



Star plot A shows the language stars for all countries for 1977-78. The Scandinavian stars are very similar - the long spike to the right corresponds to translations from English, and the spike to the lower left to translations from Scandinavian. All of the Eastern-European nations have long spikes to the lower right, corresponding to translations from "other" languages, while Czechoslovakia, East Germany, and Poland have large spikes to the upper right, corresponding to Russian, Poland and Yugoslavia have large English components. France and West Germany translate most from English and other languages, while Italy and Spain are almost identical, translating from English, French (upper left), German (left) and other languages. The U.K. and U.S. have the largest spikes for French, German and other languages, while Canada and other countries translate mostly English. The Soviet Union has two large spikes - the largest to the upper right, for Russian, and the other to the lower right, for other languages.

Star plot B contains the subject stars for 1977-78. The Scandinavian countries, East Germany and France look similar, with a large spike to the left corresponding to literature and a smaller spike to the lower right for "other" subjects. The spikes to the right, upper right and upper left correspond to social, pure and applied sciences respectively; Hungary, Italy, Soviet Union, Poland, Rumania and Spain are the largest in these directions. West Germany and Czechoslovakia have the same long literature spike that the Scandinavians and East Germany do, but translate more sciences than "other" subjects. Yugoslavia is long to the right, for social science, while the two English-speaking nations are strong in other subjects and history, together with a good mixture of the sciences and literature; they are similar to Rumania except that they translate more "other" subjects. Finally, Canada and "other" nations have long spikes to the lower right, corresponding to other subjects, but otherwise differ markedly, resembling no other model.

We also show the stars for all three periods for selected nations, to give a feeling for the changes these nations show (star plots C and D). The three nations which changed the most with respect to the language they translated are Czechoslovakia, Hungary and Rumania; Hungary and the U.K. changed the most with respect to subjects. We will show the stars for these four nations (Hungary, U.K., Rumania and Czechoslovakia), as well as Spain, USSR, France and "other" nations, for both translations by subject and by original language (star plots E and F).

Star Plot C



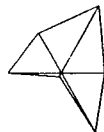
czech. 1960-61



czech. 1970-71



czech. 1977-78



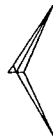
hungary 1960-61



hungary 1970-71



hungary 1977-78



rumania 1960-61



rumania 1970-71



rumania 1977-78



france 1960-61



france 1970-71



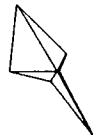
france 1977-78

english, russian, french, german, scand., other  
counterclockwise from right

Star Plot D



spain 1960-61



uk 1960-61



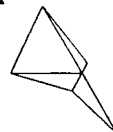
other 1960-61



ussr 1960-61



spain 1970-71



uk 1970-71



other 1970-71



ussr 1970-71



spain 1977-78



uk 1977-78



other 1977-78



ussr 1977-78

english, russian, french, german, scand., other  
counterclockwise from right

Star Plot E



czech. 1960-61



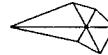
czech. 1970-71



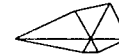
czech. 1977-78



hungary 1960-61



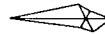
hungary 1970-71



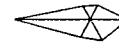
hungary 1977-78



rumania 1960-61



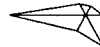
rumania 1970-71



rumania 1977-78



france 1960-61



france 1970-71



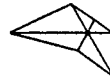
france 1977-78

social, pure, applied, lit, history, other  
counterclockwise from right

Star Plot F



spain 1960-61



spain 1970-71



spain 1977-78



uk 1960-61



uk 1970-71



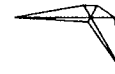
uk 1977-78



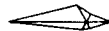
other 1960-61



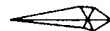
other 1970-71



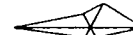
other 1977-78



ussr 1960-61



ussr 1970-71



ussr 1977-78

social, pure, applied, lit, history, other  
counterclockwise from right

## SUMMARY

The number of translations worldwide is growing considerably, but not all countries share equally in this growth. The growth rates for different countries fall into three groups - the "super-achievers": Denmark, Hungary, France, Germany, Spain and the U.K., with growth rates over 136 %, the "decliners": Czechoslovakia and Rumania, and the rest of the world, with growth rates between 18 % and 41 %.

English and Scandinavian are the fastest growing languages as sources for translations, and Russian is the slowest. Countries increasing their translations of Scandinavian the most were the Scandinavian countries, while the "other" countries increased their proportion of English translations sharply. Striking decreases in the proportion of Russian translations were registered by Rumania and Hungary, lesser decreases by Poland and Yugoslavia, while the Soviet Union translated more Russian.

There are clear differences among countries with regard to what languages they are most likely to translate, and these differences largely follow our original groups of countries. The Scandinavian countries translated mostly from English and Scandinavian; the Eastern-European countries from Russian and/or "other" (there are very differences among them), the Western-European and other nations from English, French and German, and the U.K. and U.S. from French, German and other languages.

There is a shift in emphasis from literature and history toward the sciences and "other" subjects. The countries which increased the most in proportion of translations in the sciences are Hungary, Italy, Spain, and Soviet Union; those which decreased are Czechoslovakia, Rumania and Poland. Countries which translated the most in the sciences in 1977-78 are the communist countries (except East Germany), Italy, Spain and the U.K. The largest increase in "other" subjects was registered by "other" countries. The decline of literature and history was almost universal - only the U.K. and Czechoslovakia increased their share of translations in these areas.

The countries which were the most unstable in their pattern of translations with respect to original language were Rumania, Hungary and Czechoslovakia, most unstable regarding the subject of the translation were Hungary and the U.K.

There are very wide differences in growth rates among countries - a small number of countries grew faster than 135 % (for 17 years), most grew between 18 % and 42 %, while two declined. The fast-growing countries are not limited to one geographic region or political classification, leading us to question whether we can find other similarities among the fast growing countries that would explain these growth rates. We did not find such similarities. When we analyzed nations according to the languages or subjects they translate we observe our original groups. The Scandinavian nations are homogeneous and stable over time, and translate a great deal of literature, mostly from Scandinavian languages and English. The Eastern-European nations are less homogeneous and much less stable, but can be generally characterized as translating strongly in the sciences and from "other" languages and Russian, traits they share with Russia, although in comparison Russians translate more Russian works, both for their ethnic minorities, and for purposes of worldwide propaganda. Western-European nations are moderately homogeneous and stable, translating relatively large amounts of English, French and German and of literature and history. The English-speaking nations translate very little English, but otherwise the same proportions of

languages as the Western-European nations, and translate strongly from "other" subjects. Other nations translate relatively much from "other" subjects, especially in the last period, and translate mostly from English.

To conclude, the cross-cultural historical investigation of translations has drawn attention to those ever-changing features that both unite and differentiate from one another the cultural and scientific tastes of differing people and nations.

Common features include the striking growth in the total number of translations during the present century; the increasing interest in the cultural achievements of the English-speaking world; the geographical extension of translations from and toward continents other than Europe; rising interest in translations from less well-known languages, in addition to translations from English, French, Russian, and German; the changes in the subject matter of translations, with a shift to themes other than literature.

This study has drawn attention to specific groups of countries that either share in the characteristics mentioned above, or that diverge from them. In addition, this study opens a number of new questions that still await an answer. Why, for instance do Britons and Czecho-Slovaks show a far greater preference for translations of literary works than other nations whose interest in foreign literary work appear to be on the decline? Why has the number of translations in the scientific field gone down in Rumania and Poland, whereas their number has grown in Hungary and the USSR? Why did the Scandinavian countries during the 1960s occupy a leading position in the world and show such a remarkable interest in works of history, whereas this trend strikingly reversed itself in Scandinavia during the late 1970's? How and why did Spain experience the highest growth rate in translations in the world (256 percent), whereas the U.S. growth rate increased only by 18 percent?

The present has drawn attention to the dominating position held at present in the world by a shared European-North American civilization. The last five decades, however, have seen a diminution in the discrepancy between the number of translations by this cultural region and the number of translations by non-European languages.

Much will depend on the manner in which the countries in the Southern Hemisphere and the Orient will make use of the cultural achievements of the presently dominant European and North American cultures. If the Southern Hemisphere and the Oriental nations do succeed in the cultural field, they must creatively and critically assimilate the European-North American cultural contributions. By doing so, these nations will in turn enrich the former culture givers, and thus reciprocally enhance the interest in and the attention to the intellectual work created in the Southern Hemisphere and the Orient. These regions will then repeat once more the cultural contributions that they had once made to world civilization in the remoter past. We may assume, therefore that Oswald Spengler's purist nations and the schematic treatment of world history on the part of Arnold Toynbee may henceforth be regarded as outdated.

The history of civilization, as seen from the standpoint of cross-cultural history of international relations might be likened to a stellar constellation. In such a constellation there is ever-lasting flux. Changes occur forever on two separate planes - those that take place in a manner quite independent of us, and those that we can discover, having perfected our instruments of observation, thereby enhancing our relevant knowledge.

The present essay has attempted to look at history of translations as a stellar constellation. In this constellation, the creations of vanished worlds continue to sparkle, just as long-extinct stars continue to cast their light on distant heavenly bodies in the universe. If we consider the development of civilizations in this fashion, we shall no longer think in terms of cultural dominance and subordination. We will no longer interpret history in terms of the rise and fall of civilizations; instead history seems like a great stellar constellation whose longue duree recalls the moving of high tide and low tide.

#### NOTES

\* I would like to thank L.H. Gann, Senior Fellow at the Hoover Institution, Stanford University, for his intellectual companionship. I am also grateful to Tim Hesterberg from the Statistics Department of Stanford University for his outstanding assistance.

#### BIBLIOGRAPHY

Becker, Richard and John Chambers, *An Interactive Environment for Data Analysis and Graphics*, Wadsworth 1984

Greenacre, Michael J., *Theory and Applications of Correspondence Analysis*, Academic Press 1984

Index Translationum, 1932, 1933, League of Nations, Geneva. Index Translationum, 1948-1978, UNESCO, Paris

UNESCO Statistical Yearbooks, 1956-1983